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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR    | ATTORNEY DOCKET NO. | CONFIRMATION NO.             |
|--|-------------|-------------------------|---------------------|------------------------------|
| 10/004,440   | 11/01/2001  | William John Goetzinger | ROC920010205US1     | 8209                         |
| 7590   | 07/26/2005  |                         |                     |                              |
| Leslie J. Payne<br>IBM Corporation - Dept. 917<br>3605 Highway 52 North<br>Rochester, MN 55901 |             |                         |                     | EXAMINER<br>ROBERTS, BRIAN S |
|  |             |                         |                     | ART UNIT<br>2662             |
|  |             |                         |                     | PAPER NUMBER<br>2662         |

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                           |                   |
|------------------------------|---------------------------|-------------------|
| <b>Office Action Summary</b> | Application No.           | Applicant(s)      |
|                              | 10/004,440                | GOETZINGER ET AL. |
|                              | Examiner<br>Brian Roberts | Art Unit<br>2662  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 November 2001.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 November 2001 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

1. Claims 1-20 have been examined.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henrion et al. (US 6469982) in view of Snyder II et al. (US 6888830) and further in view of Bass et al. (US 6804249).

- In reference to claim 1 and 19

Henrion et al. teaches:

- Storing the status of each data flow to the memory MEM (calendar status array) in a variable called status variable ACT (active flow indicator) (column 11 lines 30-35)
- Updating the memory MEM
- Utilizing the MEM to share the unreserved bandwidth among the active data flows (column 11 lines 9-15)

Henrion et al. does not teach storing a subset of the active flow indicators from the calendar status array (CSA) in a cache.

Snyder II et al. teaches transferring a subset to a cache. (column 9 lines 64-67)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of Henrion et al. to include storing a subset of the variable ACT from the memory in a cache as taught by Snyder II et al. because storing the subset in a cache allows for a faster processing time for the subset than if the subset was to be processed along with the entire calendar status array.

The combination of Henrion et al. and Snyder II et al. teaches a system and method that covers substantially all limitations of the parent claim.

The combination of Henrion et al. and Snyder II et al. does not teach a system with a plurality of calendars

In Figure 3, Bass et al. teaches a system with a plurality of calendars.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of Henrion et al. for a system with a plurality of calendars as taught by Bass et al. because it allows the active data flows of the calendars to share the unreserved bandwidth.

- In reference to claim 3

The combination of Henrion et al. and Snyder II et al. teaches a system and method that covers substantially all limitations of the parent claim.

The combination of Henrion et al. and Snyder II et al. does not teach a system with a weighted fair queue (WFQ) ring.

In Figure 3, Bass et al. teaches a system with a WFQ ring.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of storing the status variable ACT in the memory MEM of the combination of Henrion et al. to include storing the status variable ACT in the memory MEM in a system with a weighted fair queue (WFQ) ring as taught by Bass et al. because it allows the active data flows of the plurality of calendars and WFQ rings to share the unreserved bandwidth.

- In reference to claim 4-6 and 17

The combination of Henrion et al. and Snyder II et al. teaches a system and method that covers substantially all limitations of the parent claim.

The combination of Henrion et al. and Snyder II et al. does not teach utilizing a current pointer for loading the subset of the active flow indicators from the calendar status array starting at the current pointer entry and increasing through the predefined number of CSA entries equal to the predefined number of bits and four addressed portions.

In Figure 3, Bass et al. teaches utilizing a current pointer to indicate the current service location within a plurality of calendars where each is segmented into four epochs. (column 7 lines 47-49) In Figure 6 and 7, Bass et al. teaches utilizing the current pointer to calculate a bit distance.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of the combination of Henrion et al. and Snyder II et al. to include utilizing a current pointer to store a subset consisting of a

predefined number of bits from the calendar status array that consists of four address portions in a cache as taught by Bass et al. because storing the subset of active flow indicators in a cache allows for a faster processing time for the subset than if the subset was to be processed along with the entire calendar status array.

- In reference to claim 7

The combination of Henrion et al. and Snyder II et al. teaches a system and method that covers substantially all limitations of the parent claim. Henrion et al. further teaches:

- Storing the status of each data flow to the memory MEM (calendar status array) in a variable called status variable ACT (active flow indicator) (column 11 lines 30-35)

The combination of Henrion et al. and Snyder II et al. does not teach a system with a plurality of calendars

In Figure 3, Bass et al. teaches a system with a plurality of calendars.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of storing the status variable ACT in the memory MEM of the combination of Henrion et al. and Snyder II et al. to include storing the status variable ACT in the memory MEM for a system with a plurality of calendars as taught by Bass et al. because it allows the active data flows of the calendars to share the unreserved bandwidth.

- In reference to claim 8-10 and 13-16

The combination of Henrion et al. and Snyder II et al. teaches a system and method that covers substantially all limitations of the parent claim.

The combination of Henrion et al. and Snyder II et al. does not teach a plurality of calendars or updating the calendar status array based upon the predefined calendar range and resolution of the epoch 0 through epoch p for the plurality of calendars.

In Figure 3 and 4, Bass et al. teaches a plurality of calendars (LLS, NLS, and PBS) segmented into four epochs where the second epoch has a ration of 16 times the first epoch with the third epoch having the same ratio to the second and the fourth epoch having the same ratio to the third. (column 8 lines 4-24)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of storing the status variable ACT in the memory MEM of the combination of Henrion et al. and Snyder II et al. to include storing the status variable ACT in the memory MEM for a system with a plurality of calendars segmented into epochs because it allows the active data flows of the calendars to share the unreserved bandwidth.

- In reference to claim 11, 18, and 20

The combination of Henrion et al. and Snyder II et al. teaches a system and method that covers substantially all limitations of the parent claim.

The combination of Henrion et al. and Snyder II et al. does not teach utilizing the subset of active flow indicators for incrementing a current pointer by a variable number

of positions up to a current time value where the maximum value is equal to the number of entries in the cache.

In Figure 6 and 7, Bass et al. teaches utilizing a current pointer in a calendar to increment by a variable number of positions up to a current time value.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of the combination of Henrion et al. and Snyder II et al. with the subset of active flow indicators by utilizing the subset to increment a current pointer to a variable number of positions as taught by Bass et al. because incrementing the current pointer based upon the number of bits within the subset up to a current time value allows for the current pointer to catch up to the current time when it falls behind the current time thus, helping avoid problems that may occur when the current pointer lags behind the current time.

- In reference to claim 12

In the Figure, Henrion et al. teaches a system that includes:

- A selector SEL (queue manager)
- A plurality of queues coupled to the selector
- A memory MEM (calendar status array) for storing the status of each data flow in a variable called status variable ACT (active flow indicator) (column 11 lines 30-35)
- A algorithm for updating the memory MEM (calendar status array)

- A selector (queue manager) that controls the output of the queues in the buffer BUF

Henrion et al. does not teach a cache for storing a subset of the active flow indicators from the calendar status array (CSA).

Snyder II et al. teaches a cache for storing a subset. (column 9 lines 64-67)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of Henrion et al. to include a cache for storing a subset of the variable ACT from the memory as taught by Snyder II et al. because storing the subset in a cache allows for a faster processing time for the subset than if the subset was to be processed along with the entire calendar status array.

The combination of Henrion et al. and Snyder II et al. teaches a system and method that covers substantially all limitations of the parent claim.

The combination of Henrion et al. and Snyder II et al. does not teach a system with a plurality of calendars

In Figure 3, Bass et al. teaches a system with a plurality of calendars.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system of the combination of Henrion et al. and Snyder et al. for a system with a plurality of calendars as taught by Bass et al. because it allows the active data flows of the calendars to share the unreserved bandwidth.

4. Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henrion et al. (US 6469982) in view of Snyder II et al. (US 6888830) and further in view of Bass et al. (US 6804249) and further in view of Holt et al. (US 5790545)

- In reference to claim 2

The combination of Henrion et al., Snyder II et al. and Bass et al. teaches a system and method that covers substantially all limitations of the parent claim. Henrion et al. further teaches:

- Storing the status of each data flow to the memory MEM (calendar status array) in a variable called status variable ACT as a "Yes" or No". (column 11 lines 30-35; Figure)

The combination of Henrion et al., Snyder II et al. and Bass et al. does explicitly teach storing one bit for each calendar entry in the calendar status array.

Holt et al. teaches an Active bit. (column 9 lines 25-29)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of the combination of Henrion et al., Snyder II et al. and Bass et al. to include storing the "YES" or "No" in a bit as taught by Holt et al. because it provides maximizes the efficiency of the memory to store the status of each data flow in a single bit where Yes equals a 1 and a No equals a 0.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

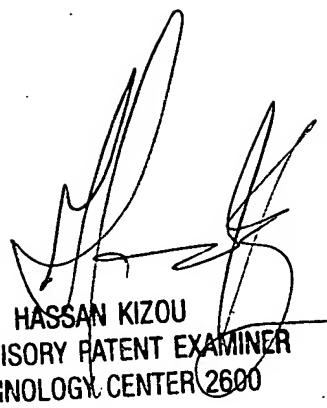
- Lyles et al. (US 5926459) teaches a rate shaping per-flow queued routing mechanisms for available bit rate service
- Calvignac et al. (US 5946297) teaches a scheduling method and apparatus for supporting ATM connections having a guaranteed minimum bandwidth
- Rumph (US 2003/0058879) teaches a scalable hardware scheduler time based calendar search algorithm
- Beshai (US 6646986) teaches scheduling of variable sized packet data under transfer rate control in a system with a plurality of calendars.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Roberts whose telephone number is (571) 272-3095. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BSR  
07/22/2005



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